



DATA VALIDATION REPORT

Gold King Mine Long Term Monitoring

SAMPLE DELIVERY GROUP: 680-130404-1

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014



I. INTRODUCTION

Task Order Title: Gold King Mine Long Term Monitoring
Project No.: 20408.012.001.0397.00
Sample Delivery Group: 680-130404-1
EPA Project Manager: Steve Merritt
Weston Project Manager: Mark Blanchard
TDD No.: 0001/1510-02
Matrix: Water/ Sediment
QC Level: Stage 2A
No. of Samples: 8
No. of Reanalyses/Dilutions: 0
Laboratory: TestAmerica - Savannah

This data validation report was revised to correct sample ID ADW-010_SED_100116 on the validated sample result forms. This report is presented as Revision 1.

Table 1. Sample Identification

<i>Location ID</i>	<i>Lab Sample Name</i>	<i>Matrix Type</i>	<i>Collection Date</i>	<i>Method</i>
ADW-010_100116	680-130404-1	Water	10/1/16 9:45 AM	200.7, 200.8, 245.1, 2320B, 2340B, 2540 D, 5310 B
ADW-010_SED_100116	680-130404-2	Sediment	10/1/16 9:45 AM	6010C, 6020A, 7471A
ADW-021_100116	680-130404-3	Water	10/1/16 8:15 AM	200.7, 200.8, 245.1, 2320B, 2340B, 2540 D, 5310 B
ADW-021_SED_100116	680-130404-4	Sediment	10/1/16 8:15 AM	6010C, 6020A, 7471A
ADW-022_093016	680-130404-5	Water	9/30/16 8:30 AM	200.7, 200.8, 245.1, 2320B, 2340B, 2540 D, 5310 B
ADW-022_SED_093016	680-130404-6	Sediment	9/30/16 8:30 AM	6010C, 6020A, 7471A
GKM05_093016	680-130404-7	Water	9/30/16 4:15 PM	200.7, 200.8, 245.1, 2320B, 2340B, 2540 D, 5310 B
GKM05_SED_093016	680-130404-8	Sediment	9/30/16 4:15 PM	6010C, 6020A, 7471A

II. Sample Management

Anomalies regarding sample management are noted below. The samples were received within the temperature limits of $>0^{\circ}\text{C}$ to $<6^{\circ}\text{C}$. The samples were received intact, on ice and properly preserved. Custody seals on shipping and sample containers were intact. The chains-of-custody (COCs) were appropriately signed and dated by field and laboratory personnel.



The following issue was noted by the reviewer: sample ADW-010-SED_100116 was mis-logged by the laboratory as ADW-010_SED_10016. The ID was corrected by the reviewer in this report.

**Data Qualifier Reference Table**

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
UB	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.	The analyte was detected in the sample and in either the associated laboratory blank or field blank. If detected below the reporting limit (RL) the analyte result was reported as non-detected at the RL due to blank contamination. If detected above the RL, the analyte result was reported as non-detected at the reported result due to blank contamination.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.



Qualifier	Organics	Inorganics
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
UJB	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The analyte was detected in the sample and in either the associated laboratory blank or field blank; the analyte result was reported as non-detected at either the RL or the reported result. The reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

**Qualification Code Reference Table**

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
\$	Reported result or other information was incorrect.	Reported result or other information was incorrect.



Qualifier	Organics	Inorganics
?	TIC identity or reported retention time has been changed.	Not applicable.
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.



III. Method Analyses

A. Contract Laboratory Program Statement of Work for Inorganic Superfund Methods 200.7, 200.8, 245.1, 6010C, 6020A, 7471A—Metals and Mercury

Reviewed By: M. Hilchey

Date Reviewed: October 24, 2016

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment; Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015); *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods; EPA Methods 200.7, 200.8, 245.1, 6010C, 6020A and 7471A*; and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Analytical Method Blanks: No target analytes were reported in the method blanks with the exceptions of chromium (0.127 mg/Kg) and vanadium (0.402 mg/Kg) in the sediment method blank; however, these were insufficient to qualify associated site sample results.
- Laboratory Control Samples (LCS): The recoveries were within laboratory control limits of 75-125% for methods 6010C and 6020A, 85-115% for methods 200.7, 200.8 and 245.1, and 80-120% for method 7471A with the exception of beryllium for method 200.8 (116%). Results for total and dissolved beryllium in the aqueous samples were all nondetects and required no qualification.
- Laboratory Duplicates: Laboratory duplicate analyses were not performed on a sample from this SDG. Method precision was evaluated based on matrix spike/matrix spike duplicate results.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were performed on the samples below.

Parent Sample	Analysis
ADW-021_100116 and ADW-010_100116	200.7 (total metals only), 200.8 (total metals only)
GKM05_093016	(245.1 total Hg only)
ADW010_SED_100116	6010C, 6020A, 7471A



Results were not assessed when the native concentration was more than 4× the spike amount. The recoveries were within the laboratory control limits of 75-125% for methods 200.7, 6010C and 6020A, 80-120% for method 7471, and 70-130% for methods 200.8 and 245.1 except as noted in the table below. All associated detected sample results were qualified as estimated (J+ for recoveries above the QC limit, J- for recoveries below the QC limit). All nondetected sample results associated with recoveries below the QC limit were qualified as estimated nondetects (UJ). The RPDs were ≤20%.

Analyte	MS/MSD %R	Affected samples
total beryllium	acceptable/134%	ADW-021_100116 (nondetect—no qualification)
total aluminum	acceptable/131%	ADW-010_100116
magnesium	70%/72%	All sediment samples
antimony	69%/72%	

- Post Digestion Spike (PDS): There were no PDS analyses reported in this SDG.
- Serial Dilution: Serial dilution analyses were not reported in this SDG.
- Field QC Samples: MEC^x evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^x used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below:
 - Field Blanks and Equipment Rinsates: Field blank or equipment blank samples were not identified for this SDG.
 - Field Duplicates: Field duplicate samples were not identified for this SDG.

B. Methods SM2340B, SM2320B, SM2540D, SM5310B—Total Hardness by calculation, Total Alkalinity, Total Suspended Solids (TSS), Dissolved Organic Carbon (DOC), Total Organic Carbon (TOC)

Reviewed By: M. Hilchey

Date Reviewed: October 24, 2016

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U.S. EPA Region 8 CERCLA Site Assessment; Sampling and Analysis Plan/Quality Assurance Project Plan for Gold King Mine Release, Silverton, San Juan County, Colorado* (2015); *United States Environmental Protection Agency Contract Laboratory Program Statement of Work for Inorganic Superfund Methods; Standard Methods for the Examination of Water and Wastewater* 2340B, 2320B, 2540D and 5310B; and the *National Functional Guidelines for Superfund Inorganic Data Review* (2014).



- Holding Times: The analytical holding times, as listed below, were met.
 - Total Hardness (SM2340B) – 180 days
 - Total Alkalinity (SM2320B) – 14 days
 - Total Suspended Solids (SM2540D) – 7 days
 - Total Organic Carbon (SM5310B) – 28 days
 - Dissolved Organic Carbon (SM5310B) – 28 days
- Analytical Method Blanks: There were no detects in the method blanks.
- Laboratory Control Samples: LCS/LCSD recoveries were within the laboratory control limits of 80-120% for all methods, and RPDs were within the laboratory control limits of $\leq 30\%$ for alkalinity, $\leq 20\%$ for DOC, and $\leq 25\%$ for TSS and TOC.
- Laboratory Duplicates: Laboratory duplicate analyses were not performed on samples from this SDG.
- Matrix Spike/Matrix Spike Duplicate (MS/MSD): MS/MSD analyses were performed for method 5310 DOC on sample ADW-010_100116. All laboratory recovery and RPD acceptance criteria were met. MS/MSD analyses were not performed for the remaining methods.

Field QC Samples: MEC^x evaluated field quality control (QC) samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^x used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

- Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples.
- Field Duplicates: Field duplicate samples were not identified for this SDG.

Validated Sample Result Forms: 680-130404-1

Analysis Method 200.7 Rev 4.4

Sample Name ADW-010_100116

Matrix Type: Water

Lab Sample Name: 680-130404-1

Sample Date: 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	800	200	24	ug/L	F1	J+	Q
Aluminum, Dissolved	D	7429-90-5	33	200	24	ug/L	J	J	
Calcium	T	7440-70-2	67000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	66000	500	25	ug/L			
Iron	T	7439-89-6	700	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	9800	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	9600	500	33	ug/L			
Potassium	T	7440-09-7	2800	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2600	1000	17	ug/L			
Sodium	T	7440-23-5	17000	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	17000	1000	480	ug/L			

Sample Name ADW-021_100116

Matrix Type: Water

Lab Sample Name: 680-130404-3

Sample Date: 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	730	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	33	200	24	ug/L	J	J	
Calcium	T	7440-70-2	65000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	64000	500	25	ug/L			
Iron	T	7439-89-6	650	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	9700	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	9500	500	33	ug/L			
Potassium	T	7440-09-7	2700	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2600	1000	17	ug/L			
Sodium	T	7440-23-5	16000	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	16000	1000	480	ug/L			

Analysis Method 200.7 Rev 4.4

Sample Name		ADW-022_093016				Matrix Type: Water			
Lab Sample Name:		680-130404-5		Sample Date:		9/30/2016 8:30:00 AM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	790	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	30	200	24	ug/L	J	J	
Calcium	T	7440-70-2	60000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	60000	500	25	ug/L			
Iron	T	7439-89-6	700	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	8900	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	8800	500	33	ug/L			
Potassium	T	7440-09-7	2600	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2400	1000	17	ug/L			
Sodium	T	7440-23-5	14000	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	14000	1000	480	ug/L			

Sample Name		GKM05_093016					Matrix Type: Water		
Lab Sample Name:		680-130404-7		Sample Date:		9/30/2016 4:15:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	200	200	24	ug/L			
Aluminum, Dissolved	D	7429-90-5	39	200	24	ug/L	J	J	
Calcium	T	7440-70-2	59000	500	25	ug/L			
Calcium, Dissolved	D	7440-70-2	58000	500	25	ug/L			
Iron	T	7439-89-6	260	50	17	ug/L			
Iron, Dissolved	D	7439-89-6	17	50	17	ug/L	U	U	
Magnesium	T	7439-95-4	7800	500	33	ug/L			
Magnesium, Dissolved	D	7439-95-4	7700	500	33	ug/L			
Potassium	T	7440-09-7	2400	1000	17	ug/L			
Potassium, Dissolved	D	7440-09-7	2400	1000	17	ug/L			
Sodium	T	7440-23-5	11000	1000	480	ug/L			
Sodium, Dissolved	D	7440-23-5	11000	1000	480	ug/L			

Analysis Method 200.8

Sample Name		ADW-010_100116					Matrix Type: Water		
Lab Sample Name:		680-130404-1		Sample Date: 10/1/2016 9:45:00 AM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum, Dissolved	D	7429-90-5	32	10	4.6	ug/L			
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.89	1	0.37	ug/L	J	J	
Arsenic, Dissolved	D	7440-38-2	0.64	1	0.37	ug/L	J	J	
Barium	T	7440-39-3	87	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	71	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U *	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U * ^	U	
Cadmium	T	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Cadmium, Dissolved	D	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	0.58	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	0.13	0.4	0.12	ug/L	J	J	
Copper	T	7440-50-8	3.3	5	0.5	ug/L	J	J	
Copper, Dissolved	D	7440-50-8	1.4	5	0.5	ug/L	J	J	
Lead	T	7439-92-1	2.9	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.06	0.3	0.06	ug/L	U	U	
Manganese	T	7439-96-5	120	2.5	1.2	ug/L			
Manganese, Dissolved	D	7439-96-5	24	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	1.2	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	1.2	1	0.45	ug/L			
Nickel	T	7440-02-0	1.5	5	0.4	ug/L	J	J	
Nickel, Dissolved	D	7440-02-0	1.4	5	0.4	ug/L	J	J	
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	1.5	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	0.38	1	0.3	ug/L	J	J	
Zinc	T	7440-66-6	31	20	2.8	ug/L			
Zinc, Dissolved	D	7440-66-6	4	20	2.8	ug/L	J	J	

Analysis Method 200.8

Sample Name		ADW-021_100116					Matrix Type: Water		
Lab Sample Name:		680-130404-3		Sample Date:		10/1/2016 8:15:00 AM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum, Dissolved	D	7429-90-5	33	10	4.6	ug/L			
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	1.4	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	0.84	1	0.37	ug/L	J	J	
Barium	T	7440-39-3	81	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	71	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U F1 * ^	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U * ^	U	
Cadmium	T	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Cadmium, Dissolved	D	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	0.48	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	0.13	0.4	0.12	ug/L	J	J	
Copper	T	7440-50-8	2.7	5	0.5	ug/L	J	J	
Copper, Dissolved	D	7440-50-8	1.6	5	0.5	ug/L	J	J	
Lead	T	7439-92-1	2.3	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.06	0.3	0.06	ug/L	U	U	
Manganese	T	7439-96-5	96	2.5	1.2	ug/L			
Manganese, Dissolved	D	7439-96-5	15	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	1.2	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	1.2	1	0.45	ug/L			
Nickel	T	7440-02-0	1.3	5	0.4	ug/L	J	J	
Nickel, Dissolved	D	7440-02-0	0.99	5	0.4	ug/L	J	J	
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	1.4	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	0.37	1	0.3	ug/L	J	J	
Zinc	T	7440-66-6	29	20	2.8	ug/L			
Zinc, Dissolved	D	7440-66-6	5	20	2.8	ug/L	J	J	

Analysis Method 200.8

Sample Name		ADW-022_093016					Matrix Type: Water		
Lab Sample Name:		680-130404-5		Sample Date: 9/30/2016 8:30:00 AM					
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum, Dissolved	D	7429-90-5	32	10	4.6	ug/L			
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.66	1	0.4	ug/L	J	J	
Arsenic	T	7440-38-2	1.1	1	0.37	ug/L			
Arsenic, Dissolved	D	7440-38-2	1.2	1	0.37	ug/L			
Barium	T	7440-39-3	78	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	70	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U * ^	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U * ^	U	
Cadmium	T	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Cadmium, Dissolved	D	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	0.48	0.4	0.12	ug/L			
Cobalt, Dissolved	D	7440-48-4	0.27	0.4	0.12	ug/L	J	J	
Copper	T	7440-50-8	2.8	5	0.5	ug/L	J	J	
Copper, Dissolved	D	7440-50-8	1.2	5	0.5	ug/L	J	J	
Lead	T	7439-92-1	2.4	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.06	0.3	0.06	ug/L	U	U	
Manganese	T	7439-96-5	100	2.5	1.2	ug/L			
Manganese, Dissolved	D	7439-96-5	14	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	1	1	0.45	ug/L			
Molybdenum, Dissolved	D	7439-98-7	1.1	1	0.45	ug/L			
Nickel	T	7440-02-0	1.3	5	0.4	ug/L	J	J	
Nickel, Dissolved	D	7440-02-0	0.88	5	0.4	ug/L	J	J	
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	1.5	1	0.3	ug/L			
Vanadium, Dissolved	D	7440-62-2	0.36	1	0.3	ug/L	J	J	
Zinc	T	7440-66-6	31	20	2.8	ug/L			
Zinc, Dissolved	D	7440-66-6	6.2	20	2.8	ug/L	J	J	

Analysis Method 200.8

Sample Name		GKM05_093016					Matrix Type: Water		
Lab Sample Name:		680-130404-7		Sample Date:		9/30/2016 4:15:00 PM			
Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.4	1	0.4	ug/L	U	U	
Antimony, Dissolved	D	7440-36-0	0.4	1	0.4	ug/L	U	U	
Arsenic	T	7440-38-2	0.43	1	0.37	ug/L	J	J	
Arsenic, Dissolved	D	7440-38-2	0.68	1	0.37	ug/L	J	J	
Barium	T	7440-39-3	40	2	0.14	ug/L			
Barium, Dissolved	D	7440-39-3	42	2	0.14	ug/L			
Beryllium	T	7440-41-7	0.15	0.4	0.15	ug/L	U * ^	U	
Beryllium, Dissolved	D	7440-41-7	0.15	0.4	0.15	ug/L	U * ^	U	
Cadmium	T	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Cadmium, Dissolved	D	7440-43-9	0.043	0.5	0.043	ug/L	U	U	
Chromium	T	7440-47-3	1	2	1	ug/L	U	U	
Chromium, Dissolved	D	7440-47-3	1	2	1	ug/L	U	U	
Cobalt	T	7440-48-4	0.3	0.4	0.12	ug/L	J	J	
Cobalt, Dissolved	D	7440-48-4	0.2	0.4	0.12	ug/L	J	J	
Copper	T	7440-50-8	2.1	5	0.5	ug/L	J	J	
Copper, Dissolved	D	7440-50-8	1.9	5	0.5	ug/L	J	J	
Lead	T	7439-92-1	1.4	0.3	0.06	ug/L			
Lead, Dissolved	D	7439-92-1	0.1	0.3	0.06	ug/L	J	J	
Manganese	T	7439-96-5	110	2.5	1.2	ug/L			
Manganese, Dissolved	D	7439-96-5	56	2.5	1.2	ug/L			
Molybdenum	T	7439-98-7	0.71	1	0.45	ug/L	J	J	
Molybdenum, Dissolved	D	7439-98-7	0.77	1	0.45	ug/L	J	J	
Nickel	T	7440-02-0	1.1	5	0.4	ug/L	J	J	
Nickel, Dissolved	D	7440-02-0	2.1	5	0.4	ug/L	J	J	
Selenium	T	7782-49-2	0.58	2	0.58	ug/L	U	U	
Selenium, Dissolved	D	7782-49-2	0.58	2	0.58	ug/L	U	U	
Silver	T	7440-22-4	0.1	1	0.1	ug/L	U	U	
Silver, Dissolved	D	7440-22-4	0.1	1	0.1	ug/L	U	U	
Thallium	T	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Thallium, Dissolved	D	7440-28-0	0.1	0.2	0.1	ug/L	U	U	
Vanadium	T	7440-62-2	0.3	1	0.3	ug/L	U	U	
Vanadium, Dissolved	D	7440-62-2	0.3	1	0.3	ug/L	U	U	
Zinc	T	7440-66-6	48	20	2.8	ug/L			
Zinc, Dissolved	D	7440-66-6	30	20	2.8	ug/L			

Analysis Method 2320B-2011

Sample Name ADW-010_100116 **Matrix Type:** Water

Lab Sample Name: 680-130404-1 **Sample Date:** 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Alkalinity	T	STL00171	110	5	5	mg/L			

Sample Name ADW-021_100116 **Matrix Type:** Water

Lab Sample Name: 680-130404-3 **Sample Date:** 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Alkalinity	T	STL00171	110	5	5	mg/L			

Sample Name ADW-022_093016 **Matrix Type:** Water

Lab Sample Name: 680-130404-5 **Sample Date:** 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Alkalinity	T	STL00171	100	5	5	mg/L			

Sample Name GKM05_093016 **Matrix Type:** Water

Lab Sample Name: 680-130404-7 **Sample Date:** 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Alkalinity	T	STL00171	79	5	5	mg/L			

Analysis Method 2340B-2011

Sample Name ADW-010_100116 **Matrix Type:** Water

Lab Sample Name: 680-130404-1 **Sample Date:** 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Hardness	T	STL00009	210	3.3	3.3	mg/L			

Sample Name ADW-021_100116 **Matrix Type:** Water

Lab Sample Name: 680-130404-3 **Sample Date:** 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Hardness	T	STL00009	200	3.3	3.3	mg/L			

Sample Name ADW-022_093016 **Matrix Type:** Water

Lab Sample Name: 680-130404-5 **Sample Date:** 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Hardness	T	STL00009	190	3.3	3.3	mg/L			

Analysis Method 2340B-2011

Sample Name GKM05_093016 **Matrix Type:** Water
Lab Sample Name: 680-130404-7 **Sample Date:** 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Hardness	T	STL00009	180	3.3	3.3	mg/L			

Analysis Method 245.1

Sample Name ADW-010_100116 **Matrix Type:** Water
Lab Sample Name: 680-130404-1 **Sample Date:** 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name ADW-021_100116 **Matrix Type:** Water
Lab Sample Name: 680-130404-3 **Sample Date:** 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name ADW-022_093016 **Matrix Type:** Water
Lab Sample Name: 680-130404-5 **Sample Date:** 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Sample Name GKM05_093016 **Matrix Type:** Water
Lab Sample Name: 680-130404-7 **Sample Date:** 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.08	0.2	0.08	ug/L	U	U	
Mercury, Dissolved	D	7439-97-6	0.08	0.2	0.08	ug/L	U	U	

Analysis Method 2540 D-2011

Sample Name ADW-010_100116 **Matrix Type:** Water
Lab Sample Name: 680-130404-1 **Sample Date:** 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	43	4	4	mg/L			

Analysis Method 2540 D-2011

Sample Name ADW-021_100116 **Matrix Type:** Water

Lab Sample Name: 680-130404-3 **Sample Date:** 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	72	4	4	mg/L			

Sample Name ADW-022_093016 **Matrix Type:** Water

Lab Sample Name: 680-130404-5 **Sample Date:** 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	42	4	4	mg/L			

Sample Name GKM05_093016 **Matrix Type:** Water

Lab Sample Name: 680-130404-7 **Sample Date:** 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Total Suspended Solids	T	STL00161	4	4	4	mg/L	U	U	

Analysis Method 5310 B-2011

Sample Name ADW-010_100116 **Matrix Type:** Water

Lab Sample Name: 680-130404-1 **Sample Date:** 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Dissolved Organic Carbon	T	7440-44-0	2	1	0.5	mg/L			
Total Organic Carbon	T	7440-44-0	1.5	1	0.5	mg/L			

Sample Name ADW-021_100116 **Matrix Type:** Water

Lab Sample Name: 680-130404-3 **Sample Date:** 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Dissolved Organic Carbon	T	7440-44-0	2.3	1	0.5	mg/L			
Total Organic Carbon	T	7440-44-0	1.5	1	0.5	mg/L			

Sample Name ADW-022_093016 **Matrix Type:** Water

Lab Sample Name: 680-130404-5 **Sample Date:** 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method 5310 B-2011

Dissolved Organic Carbon	T	7440-44-0	2	1	0.5	mg/L			
Total Organic Carbon	T	7440-44-0	1.5	1	0.5	mg/L			

Sample Name GKM05_093016 **Matrix Type:** Water

Lab Sample Name: 680-130404-7 **Sample Date:** 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Dissolved Organic Carbon	T	7440-44-0	2.2	1	0.5	mg/L			
Total Organic Carbon	T	7440-44-0	0.95	1	0.5	mg/L	J	J	

Analysis Method 6010C

Sample Name ADW-010_SED_100116 **Matrix Type:** Solid

Lab Sample Name: 680-130404-2 **Sample Date:** 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	7300	22	3.3	mg/Kg			
Calcium	T	7440-70-2	5300	54	5.6	mg/Kg			
Iron	T	7439-89-6	11000	22	5.7	mg/Kg			
Magnesium	T	7439-95-4	1900	54	9.6	mg/Kg	F1	J-	Q
Potassium	T	7440-09-7	1100	110	2.7	mg/Kg			
Sodium	T	7440-23-5	110	220	52	mg/Kg	J	J	

Sample Name ADW-021_SED_100116 **Matrix Type:** Solid

Lab Sample Name: 680-130404-4 **Sample Date:** 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	3200	22	3.4	mg/Kg			
Calcium	T	7440-70-2	3100	55	5.7	mg/Kg			
Iron	T	7439-89-6	5400	22	5.8	mg/Kg			
Magnesium	T	7439-95-4	890	55	9.8	mg/Kg		J-	Q
Potassium	T	7440-09-7	510	110	2.7	mg/Kg			
Sodium	T	7440-23-5	57	220	53	mg/Kg	J	J	

Sample Name ADW-022_SED_093016 **Matrix Type:** Solid

Lab Sample Name: 680-130404-6 **Sample Date:** 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	6500	21	3.3	mg/Kg			
Calcium	T	7440-70-2	6000	53	5.5	mg/Kg			
Iron	T	7439-89-6	12000	21	5.6	mg/Kg			

Analysis Method 6010C

Magnesium	T	7439-95-4	1900	53	9.4	mg/Kg	J-	Q
Potassium	T	7440-09-7	960	110	2.6	mg/Kg		
Sodium	T	7440-23-5	290	210	50	mg/Kg		

Sample Name GKM05_SED_093016

Matrix Type: Solid

Lab Sample Name: 680-130404-8

Sample Date: 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	T	7429-90-5	6500	24	3.7	mg/Kg			
Calcium	T	7440-70-2	4900	60	6.2	mg/Kg			
Iron	T	7439-89-6	24000	24	6.4	mg/Kg			
Magnesium	T	7439-95-4	3500	60	11	mg/Kg		J-	Q
Potassium	T	7440-09-7	1000	120	3	mg/Kg			
Sodium	T	7440-23-5	58	240	58	mg/Kg	U	U	

Analysis Method 6020A

Sample Name ADW-010_SED_100116

Matrix Type: Solid

Lab Sample Name: 680-130404-2

Sample Date: 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.11	1.1	0.11	mg/Kg	U F1	UJ	Q
Arsenic	T	7440-38-2	3.7	0.32	0.11	mg/Kg			
Barium	T	7440-39-3	190	0.54	0.065	mg/Kg			
Beryllium	T	7440-41-7	0.57	0.054	0.016	mg/Kg			
Cadmium	T	7440-43-9	0.14	0.054	0.016	mg/Kg			
Chromium	T	7440-47-3	5.1	1.1	0.12	mg/Kg	B		
Cobalt	T	7440-48-4	5	0.054	0.011	mg/Kg			
Copper	T	7440-50-8	11	0.54	0.14	mg/Kg			
Lead	T	7439-92-1	11	0.22	0.054	mg/Kg			
Manganese	T	7439-96-5	280	1.1	0.13	mg/Kg			
Molybdenum	T	7439-98-7	0.39	1.1	0.086	mg/Kg	J	J	
Nickel	T	7440-02-0	5.8	1.1	0.28	mg/Kg			
Selenium	T	7782-49-2	4.1	0.54	0.11	mg/Kg			
Silver	T	7440-22-4	0.046	0.11	0.011	mg/Kg	J	J	
Thallium	T	7440-28-0	0.099	0.11	0.054	mg/Kg	J	J	
Vanadium	T	7440-62-2	14	0.54	0.29	mg/Kg	B		
Zinc	T	7440-66-6	53	2.2	1.1	mg/Kg			

Sample Name ADW-021_SED_100116

Matrix Type: Solid

Lab Sample Name: 680-130404-4

Sample Date: 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.11	1.1	0.11	mg/Kg	U	UJ	Q

Analysis Method 6020A

Arsenic	T	7440-38-2	2.9	0.33	0.11	mg/Kg			
Barium	T	7440-39-3	130	0.55	0.066	mg/Kg			
Beryllium	T	7440-41-7	0.26	0.055	0.016	mg/Kg			
Cadmium	T	7440-43-9	0.11	0.055	0.016	mg/Kg			
Chromium	T	7440-47-3	2.3	1.1	0.12	mg/Kg	B		
Cobalt	T	7440-48-4	2.5	0.055	0.011	mg/Kg			
Copper	T	7440-50-8	6.6	0.55	0.14	mg/Kg			
Lead	T	7439-92-1	11	0.22	0.055	mg/Kg			
Manganese	T	7439-96-5	220	1.1	0.13	mg/Kg			
Molybdenum	T	7439-98-7	0.24	1.1	0.088	mg/Kg	J	J	
Nickel	T	7440-02-0	2.9	1.1	0.29	mg/Kg			
Selenium	T	7782-49-2	2.7	0.55	0.11	mg/Kg			
Silver	T	7440-22-4	0.047	0.11	0.011	mg/Kg	J	J	
Thallium	T	7440-28-0	0.055	0.11	0.055	mg/Kg	U	U	
Vanadium	T	7440-62-2	6.9	0.55	0.3	mg/Kg	B		
Zinc	T	7440-66-6	60	2.2	1.1	mg/Kg			

Sample Name ADW-022_SED_093016

Matrix Type: Solid

Lab Sample Name: 680-130404-6

Sample Date: 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	T	7440-36-0	0.25	1.1	0.11	mg/Kg	J	J-	Q
Arsenic	T	7440-38-2	4.7	0.32	0.11	mg/Kg			
Barium	T	7440-39-3	190	0.53	0.063	mg/Kg			
Beryllium	T	7440-41-7	0.5	0.053	0.016	mg/Kg			
Cadmium	T	7440-43-9	0.51	0.053	0.016	mg/Kg			
Chromium	T	7440-47-3	4	1.1	0.12	mg/Kg	B		
Cobalt	T	7440-48-4	5.4	0.053	0.011	mg/Kg			
Copper	T	7440-50-8	21	0.53	0.14	mg/Kg			
Lead	T	7439-92-1	51	0.21	0.053	mg/Kg			
Manganese	T	7439-96-5	730	1.1	0.13	mg/Kg			
Molybdenum	T	7439-98-7	1.1	1.1	0.084	mg/Kg			
Nickel	T	7440-02-0	5.3	1.1	0.27	mg/Kg			
Selenium	T	7782-49-2	3.1	0.53	0.11	mg/Kg			
Silver	T	7440-22-4	0.33	0.11	0.011	mg/Kg			
Thallium	T	7440-28-0	0.093	0.11	0.053	mg/Kg	J	J	
Vanadium	T	7440-62-2	16	0.53	0.28	mg/Kg	B		
Zinc	T	7440-66-6	240	2.1	1.1	mg/Kg			

Sample Name GKM05_SED_093016

Matrix Type: Solid

Lab Sample Name: 680-130404-8

Sample Date: 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
---------	-----------------	--------	--------------	-----------------	-----	--------------	---------------	----------------------	------------------

Analysis Method 6020A

Antimony	T	7440-36-0	1	1.2	0.12	mg/Kg	J	J-	Q
Arsenic	T	7440-38-2	10	0.36	0.12	mg/Kg			
Barium	T	7440-39-3	130	0.6	0.072	mg/Kg			
Beryllium	T	7440-41-7	0.56	0.06	0.018	mg/Kg			
Cadmium	T	7440-43-9	2.4	0.06	0.018	mg/Kg			
Chromium	T	7440-47-3	11	1.2	0.13	mg/Kg	B		
Cobalt	T	7440-48-4	10	0.06	0.012	mg/Kg			
Copper	T	7440-50-8	89	0.6	0.16	mg/Kg			
Lead	T	7439-92-1	210	0.24	0.06	mg/Kg			
Manganese	T	7439-96-5	2100	12	1.4	mg/Kg			
Molybdenum	T	7439-98-7	2.5	1.2	0.096	mg/Kg			
Nickel	T	7440-02-0	9.3	1.2	0.31	mg/Kg			
Selenium	T	7782-49-2	3.6	0.6	0.12	mg/Kg			
Silver	T	7440-22-4	1.1	0.12	0.012	mg/Kg			
Thallium	T	7440-28-0	0.13	0.12	0.06	mg/Kg			
Vanadium	T	7440-62-2	35	0.6	0.32	mg/Kg	B		
Zinc	T	7440-66-6	800	2.4	1.2	mg/Kg			

Analysis Method 7471A

Sample Name ADW-010_SED_100116 **Matrix Type:** Solid

Lab Sample Name: 680-130404-2 **Sample Date:** 10/1/2016 9:45:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.0089	0.022	0.0089	mg/Kg	U	U	

Sample Name ADW-021_SED_100116 **Matrix Type:** Solid

Lab Sample Name: 680-130404-4 **Sample Date:** 10/1/2016 8:15:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.0092	0.023	0.0092	mg/Kg	U	U	

Sample Name ADW-022_SED_093016 **Matrix Type:** Solid

Lab Sample Name: 680-130404-6 **Sample Date:** 9/30/2016 8:30:00 AM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.0089	0.022	0.0089	mg/Kg	U	U	

Sample Name GKM05_SED_093016 **Matrix Type:** Solid

Lab Sample Name: 680-130404-8 **Sample Date:** 9/30/2016 4:15:00 PM

Analyte	Total/Dissolved	CAS No	Result Value	Reporting Limit	MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	T	7439-97-6	0.012	0.024	0.0098	mg/Kg	J	J	